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Remarks

Applicant carefully considered the Office Action mailed on September 25, 2003. Claims 1-81 are pending in the present patent application. Of the pending claims, the Examiner rejected claims 1-81. In response to the Office Action, Applicant canceled claims 7-8, 17-19; 27-28, 37-39; 47-48, 57-59; and 67-68, 77-79 and incorporated the subject matter therefrom into independent claims 1, 22, 42, and 62, respectively, to overcome the 35 USC §103 rejections. Also, Applicant added extra limitations to claims 1, 22, 42, and 62 to further distinguish over the prior art. In addition, Applicant amended claims 9, 20, 29, 40, 49, 60, 69 and 80 to maintain proper claim dependency. Also, Applicant amended claims 6 and 32 to correct minor inconsistencies. No new matter has been added. Applicant requests further examination and reconsideration of the present patent application.

The Examiner rejected claims 1-3, 5-8, 22, 23, 25-28, 42, 43, 45-48, 62, 63 and 65-68 under 35 USC §103(a) as being unpatentable over Kaminsky et al. ("A Monte Carlo Approach To Warranty Repair Predictions") in view of Cribbes ("Changes In Engine Maintenance Management") and further in view of Endrenyi et al.

Independent claims 1, 22, 42 and 62 now recite that the simulation of a distribution of future service events are based on estimated time-to-failure distributions and performance life distributions. The combination of Kaminsky et al. (hereinafter Kaminsky) in view of Cribbes and further in view of Endrenyi et al. (hereinafter Endrenyi) does not disclose or suggest performing a simulation based on estimated time-to-failure distributions and performance life distributions. Instead, the simulation performed by the combination of Kaminsky, Cribbes and Endrenyi is based on time-to-failure distributions. The combination of Kaminsky, Cribbes and Endrenyi does not provide a motivation suggesting the desirability of performing a simulation based on both time-to-failure distributions

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and performance life distributions. Furthermore, Applicant submits that it would not have been obvious to one of ordinary skill in the art at the time of the invention to use performance life distributions in addition to time-to-failure distributions to simulate future service events in light of the teachings provided in Kaminsky, Cribbes and Endrenyi.

Since the combination of Kaminsky, Cribbes and Endrenyi does not disclose or suggest simulation of future service events based on estimated time-to-failure distributions and performance life distributions as set forth in claims 1, 22, 42 and 62, Applicant submits that these claims are patentably distinguishable over the combination. Therefore, Applicant requests that the Examiner reconsider and remove the §103(a) rejection of claims 1, 22, 42 and 62 under the combination of Kaminsky, Cribbes and Endrenyi.

Claims 2-3, 5-6; 23, 25-26; 43, 45-46; and 63, 65-66 depend directly or indirectly from now presumably allowable claims 1, 22, 42 and 62, respectively. Accordingly, Applicant requests that the Examiner reconsider and remove the §103(a) rejection of these claims.

Applicant notes that the Examiner submitted that the combination of Kaminsky in view of Cribbes and further in view of Endrenyi, Butler ("An Expert System Based Framework For An Incipient Failure Detection And Preventive Maintenance System") and Wang (US Patent Number 6,230,095) discloses the limitation of estimating deterioration rate curves for a subset of compartments of the product and transforming the deterioration rate curves to a performance life distribution. Applicant submits that the combination of Kaminsky in view of Cribbes and further in view of Endrenyi, Butler and Wang does not disclose or suggest estimating deterioration rate curves for a subset of compartments in a product and transforming the deterioration rate curves to a performance life distribution. The Examiner referenced the abstract, col. 2, lines 22-37 in Wang as being relevant to the limitation of estimating deterioration rate curves for a subset of compartments in a product. Applicant carefully reviewed these

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sections in Wang and submits that they do not suggest estimating deterioration rate curves for a subset of compartments. Instead, Wang teaches that the rate and magnitude of deterioration of an engine is indicated by a trend parameter. An indication of deterioration through the use of a trend parameter is not analogous to estimating deterioration rate curves for a subset of compartments. With regard to transforming the deterioration rate curves to a performance life distribution, the Examiner referenced page 321, column 1, paragraph 5 to column 2, paragraph 1 in Butler as being relevant to this limitation. Applicant carefully reviewed this section in Butler and submits that it does not disclose or suggest transforming deterioration rate curves for a subset of compartments to a performance life distribution. Instead, Butler relates to detecting incipient failure on distribution systems or equipment. Butler provides no teaching or motivation suggesting the desirability of transforming deterioration rate curves to a performance life distribution.

In view of these distinctions, Applicant submits that the combination of Kaminsky in view of Cribbes and further in view of Endrenyi, Butler and Wang does not disclose or suggest estimating deterioration rate curves for a subset of compartments of the product and transforming the deterioration rate curves to a performance life distribution. In addition, Applicant submits that the combination of Kaminsky in view of Cribbes and further in view of Endrenyi, Butler and Wang does not suggest simulating a distribution of future service events based on estimated time-to-failure distributions and performance life distributions. Furthermore, Applicant submits that it would not have been obvious to one of ordinary skill in the art at the time of the invention to use performance life distributions in addition to time-to-failure distributions to simulate a distribution of future service events, in light of the teachings provided in the combination of Kaminsky in view of Cribbes and further in view of Endrenyi, Butler and Wang.

The Examiner rejected claims 4, 21, 24, 41, 44, 61, 64 and 81 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi and the Aerospace Technology article entitled

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"Forecasting Engine Removals and Shop Visits" (hereinafter Aerospace Technology). The Examiner added the Aerospace Technology article for its disclosure of certain performance information. The Aerospace Technology article provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 4, 21; 24, 41; 44, 61; and 64, 81 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 9, 29, 49, and 69 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi and Woodman et al. (US Patent Number 6,195,624). The Examiner added Woodman et al. (hereinafter Woodman) for its disclosure of determining a Weibull distribution. Woodman provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 9, 29, 49, and 69 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 10, 30, 50, and 70 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi and Subramanyam (US Patent Number 5,701,471). The Examiner added Subramanyam for its disclosure of using certain statistical procedures. Subramanyam provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived

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from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 10, 30, 50, and 70 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 11, 31, 51, and 71 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi, Subramanyam and Djaja et al. (US Patent Number 6,405,160). The Examiner added Djaja et al. (hereinafter Djaja) for its disclosure of using multivariate regression and/or correlation analysis. Djaja provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 11, 31, 51, and 71 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 12, 32, 52, and 72 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi, Subramanyam and Cave et al. (US Patent Number 5,740,233). The Examiner added Cave et al. (hereinafter Cave) for its disclosure of generating certain statistical diagnostic information. Cave provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 12, 32, 52, and 72 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

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The Examiner rejected claims 13, 33, 53, and 73 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi, Subramanyam, Cave, Stoughton et al. (US Patent Number 6,132,969) and Baleanu (US Patent Number 5,718,508). The Examiner added Stoughton et al. (hereinafter Stoughton) and Baleanu for their disclosure of generating goodness-of-fit metrics and collinearity diagnostics. Neither Stoughton nor Baleanu provide a teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 13, 33, 53, and 73 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 14, 34, 54, and 74 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi, Subramanyam and Meester et al. (US Patent Number 5,686,359). The Examiner added Meester et al. (hereinafter Meester) for its disclosure of generating residual plots. Meester provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 14, 34, 54, and 74 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 15-16, 35-36, 55-56, and 75-76 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi and Kozam et al. (US Patent Application Publication Number 2002/0035570). The Examiner added Kozam et al. (hereinafter Kozam)

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for its disclosure of performing a validation. Kozam provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 15-16, 35-36, 55-56, and 75-76 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 17, 37, 57, and 77 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi and Butler. The Examiner added Butler for its disclosure of using a statistical analysis with a deterioration rate analysis. As mentioned above, Butler provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 17, 37, 57, and 77 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 18-19, 38-39, 58-59, and 78-79 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi, Butler and Wang. The Examiner added Wang for its disclosure of generating life performance distributions from deterioration rate curves. As mentioned above, Wang provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 18-19, 38-39, 58-59, and 78-79 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits



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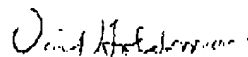
that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

The Examiner rejected claims 20, 40, 60, and 80 under 35 U.S.C. §103(a) as being unpatentable over Kaminsky in view of Cribbes and further in view of Endrenyi, Butler, Wang and Moosa et al. (US Patent Number 5,822,218). The Examiner added Moosa et al. (hereinafter Moosa) for its disclosure of using the life performance distributions to determine a Weibull distribution. Moosa provides no teaching or motivation that suggests the desirability of performing a simulation of a distribution of future service events based on estimated time-to-failure distributions and performance life distributions derived from deterioration rate curves as set forth in claims 1, 22, 42 and 62. Since claims 20, 40, 60, and 80 depend from presumably allowable claims 1, 22, 42 and 62, respectively, Applicant submits that these claims are allowable by dependency and requests that the Examiner reconsider and remove the §103(a) rejection.

In view of the foregoing remarks and amendments, Applicant requests that the Examiner reconsider this application and allow claims 1-6, 9-16, 20-26, 29-36, 40-46, 49-56, 60-66, 69-76 and 80-81.

If the Examiner has any questions regarding the present patent application, the Examiner can call Applicant's attorney, David Goldman, at telephone number (518)-387-5927 or (518)-387-5903.

Respectfully submitted,



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Schenectady, New York  
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